

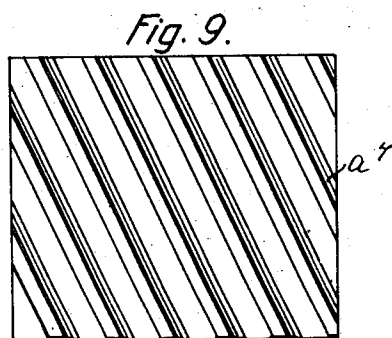
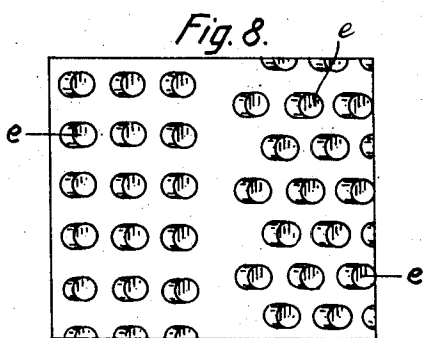
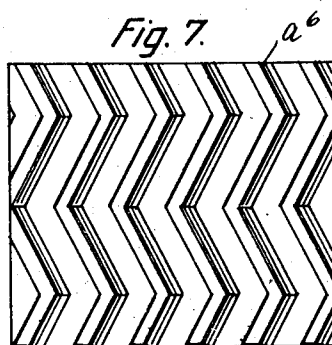
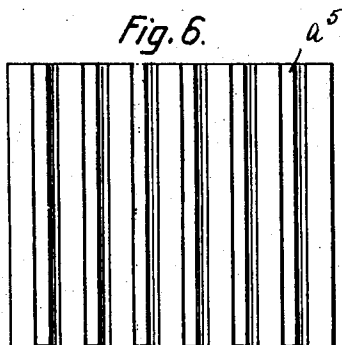
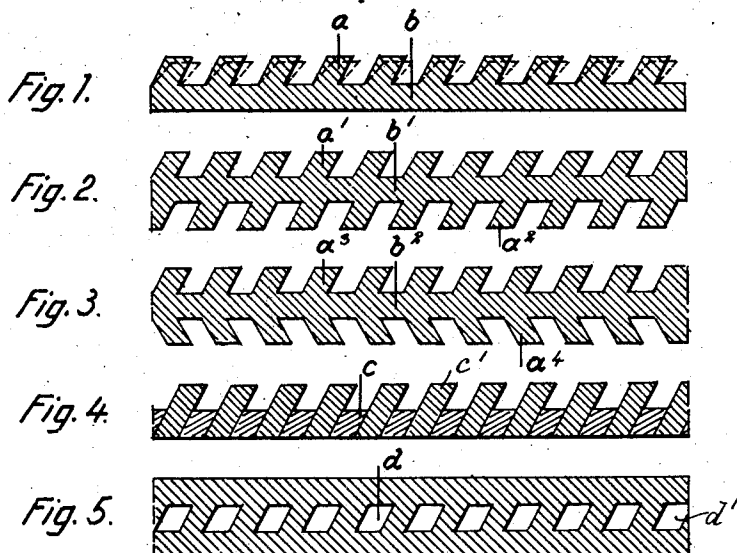
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J. WEISS

SOUND INSULATING PLATE, SHEET, OR SLAB

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UNITED STATES PATENT OFFICE.

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SOUND-INSULATING PLATE, SHEET, OR SLAB.

Application filed September 26, 1924. Serial No. 740,148.

It is a common practice to use elastic sheets, slabs or plates in the foundations of machinery and engines, and also in buildings and so on, for the purpose of reducing vibration and insulating sound, various substances and fabrics being used for making such sheets, slabs or plates, for example felt, cotton and woollen fabrics, cork, paper, peat, rubber, feathers and so on. Such sheets, may for example be placed between a machine and the floor or foundation on which it stands, or may be placed under a bed or foundation plate.

With the methods, hitherto used it has been found that to obtain complete, or practically complete insulation of sound and absorption of vibration the sheets must be made of a thickness which in practice is generally quite out of the question.

According to my invention this difficulty is overcome by so constructing a sheet, slab or plate of elastic material, for the purpose stated, that the load bearing or resting thereon not only compresses the material, or portions thereof, but imposes primarily a bending stress; that is to say the formation of the sheet is such that a load resting thereon does not merely tend to flatten it out, or condense the material but bends over certain portions of the sheet, which may be ribs, bosses, webs or the like, as will be explained hereinafter.

The invention is illustrated in the accompanying drawings, showing several examples.

Figs. 1 to 5 are cross sections, each showing one example embodying the novel feature and

Figs. 6 to 9 are plan views showing other examples.

Referring first to Fig. 1 it will be seen that there are parallel, inclined ribs a on the upper surface of the plate b forming the body or base of the sheet. The sheet may be of rubber or any other elastic material or composition which lends itself to the making of a sheet of this kind, and is of adequate strength and durability for the purpose. Broken lines in the drawing indicate the manner in which the elastic ribs are bent over to one side by a load resting on the sheet.

According to Fig. 2 the body or web b^1 of the sheet has inclined ribs a^1 on its upper surface, and ribs a^2 inclined in the same direction on its under side.

In the modification shown in Fig. 3 the web b^2 has on its upper side ribs a^3 inclined towards the right, and on its under side ribs a^4 inclined towards the left.

The ribs are not necessarily in one piece with the web, and they need not be of the same material as the web. In use, the load may rest directly upon the ribs, or a cover of wood, concrete, or any other suitable material may be interposed between the ribs and the load which the sheet is to bear.

It will be apparent that the bending of the ribs by the load imposes on the ribs a bending stress which greatly impedes transmission or vibration. Of course the load, acting on the web or body of the sheet through the ribs, also compresses the material and the compressed material assists in absorbing or damping vibration, but the absorption of vibration by a compressed elastic body is very much less than the absorption by a body of the same material under bending stress, and I have found that a good insulating effect is obtainable with plates of this kind of a thickness which would be practically useless for insulating purposes with a plain, smooth plate.

In the modification shown in Fig. 4 the sheet or plate is built up of strips c and c^1 of elastic material joined to each other side by side, the strips c^1 alternating with the strips c and being wider than they, so that a series of parallel ribs is formed on the sheet. In shape this sheet is similar to that shown in Fig. 1, the only difference being that it is not made in one piece.

According to Fig. 5 the sheet is made with parallel channels d in the interior thereof, and the inclined webs d^1 between these channels are the parts which are placed under bending stress by imposing the load on the sheet. The channels may be straight, or curved. In this modification the top and bottom surfaces of the sheet are smooth.

In the example shown in Fig. 6 the ribs a^5 extend in straight lines parallel with two edges of the sheet, whereas in Fig. 7 the ribs a^6 are zigzag.

In Fig. 8 inclined bosses *c* are substituted for ribs.

In Fig. 9 the ribs *a'* are oblique to the edges of the sheet.

5 What I claim as my invention and desire to secure by Letters Patent of the United States is:—

A slab or plate for the purpose set forth comprising a sheet of elastic material and

elastic members joined to said sheet, spaced 10 horizontally apart and each making on one side an acute angle with the plane of said slab or plate and on the opposite side an obtuse angle with said plane.

In witness whereof I have signed this 15 specification.

JOHANNES WEISS.